2.1 The Future of Energy

The challenge of climate change

Climate change is one of the most significant and urgent challenges facing humanity. Confronting this serious threat requires not only the commitment of companies and consumers, but also that of regulators and public institutions, which should adopt appropriate energy policies and regulations.

Electricity has a unique potential to contribute to this challenge due to its ability to integrate renewable energy into a number of productive processes. Therefore, it is first important to continue promoting increased penetration of renewable energy into the electricity supply. These technologies are now competitive with other sources of generation. And second there must be a drive to electrify of other industries like transport and the heating and cooling industries, which represent more than 50% of emissions and in which the penetration of electricity is still low.

The optimal integration of increased renewable generation also needs efficient and digitised transmission and distribution networks (smartgrids), as well as storage solutions.

Current energy context

The World Economic Forum's Global Risks Report 2020 considers climate change to be the main risk to the global economy over the next decade. Society is increasingly aware of the need to transform the energy and production model, and is thus demanding that governments and companies take bold action with the ultimate goal of limiting the increase in temperature to less than 1.5°C by the end of the century.

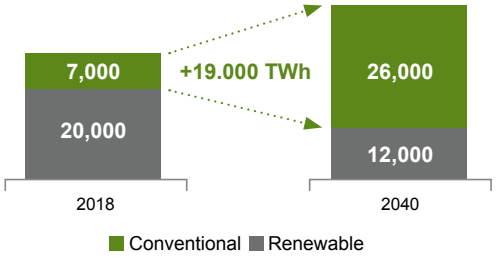
According to the IPCC(1), this will require reducing emissions by 45% by 2030 compared to those in 2010 and achieving zero net emissions by 2050. This puts electricity at the centre of decarbonisation. The electrification of sectors like transport and construction, in which the presence of electricity is still low, could multiply the total demand for electricity by the end of this century by up to six times the current demand, representing up to 71% of the final consumption of energy.

Within this context, a growing number of countries are announcing goals for emission neutrality by 2050. This includes the European Union, which has presented the European Green Deal as the roadmap for reaching this goal, with ambitious measures that promote the renewables-based electrification of transport, heating and industry.

The World Energy Outlook 2019(2) also anticipates that electricity will play a fundamental role in the world energy system, increasing its share in the total consumption of final energy from 19% in 2018 to 24% in 2040 in the main Stated Policies Scenario (STEPS), a scenario compatible with the objectives of the Paris Agreement (Sustainable Development Scenario, or SDS).

Electricity generation by source (TWh)

(WEO -Sustainable Development Scenario-)[2]



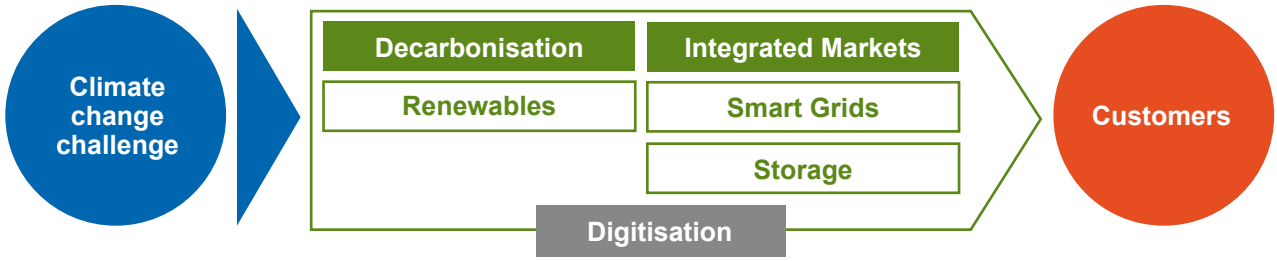
Progressive electrification will be based on renewable energy, which would reach 67% of total generation by 2040 in the SDS scenarios (44% in the STEPS scenario). The growth of renewable energy is being driven by the significant reduction in its production costs(3), which have decreased by 49% for onshore wind, 84% for solar photovoltaic and 56% for offshore wind since 2010.

The electrification of the economy accords a key role to an efficient, smart and flexible electricity transmission and distribution infrastructure, capable of integrating renewable energy and of meeting new requirements in terms of connectivity, digitisation and demand management. Along these lines, the central scenario of the WEO2019 anticipates an average investment of around 400,000 million U.S. dollars per annum in grids by 2040, almost 45% of the total investment of the electricity sector over this period.

(1) Special Report of the Intergovernmental Panel on Climate Change (IPCC) on Global Warming of 1.5 ºC.
(2) World Energy Outlook 2019 – International Energy Agency.
(3) Levelized cost of electricity (LCOE) - Bloomberg New Energy Finance (BNEF) (2019). New Energy Outlook.

Iberdrola: we began the fight against climate change more than 20 years ago

Iberdrola began a profound transformation more than 20 years ago, when it committed to a sustainable, safe and competitive energy model, which allowed it to take on the fight against climate change. This has been the main driver of its profitable growth strategy, which has led it to invest more than 100,000 million euros over these two decades in order to achieve a decarbonised energy model. The group is in an optimal position to continue anticipating and managing risks and to capitalise on the opportunities offered by this energy transition based on its leadership in renewable energy, smart grids and storage, as well as its firm commitment to digitisation.



Iberdrola's objectives

- **Reduce the intensity of emissions** of CO2 50% by 2030 compared to those in 2007, provide for its emissions to be virtually zero in Europe by 2030, and be carbon neutral by 2050.
- In March 2019 Iberdrola set a goal of reducing greenhouse gas emissions of absolute scope 1, 2 and 3, a commitment recognised according to Science Based Targets (SBTi).
- **Support international climate change negotiation processes,** private sector participation in the global agenda, creation of partnerships and raising climate awareness.

Partnerships and actions

The company plays its role as an agent of transformation through its engagement in different platforms, coalitions and world organisations, including: European Commission, UN Global Compact, We Mean Business, World Business Council for Sustainable Development and Corporate Leaders Group (CLG). It has also formally supported various initiatives, including the declaration on net-zero emissions by 2050 based on the *Science Based Targets* initiative, of which Iberdrola was one of the first companies to join.

2019 milestones include the following:

- Leadership in the private sector's participation in the principal milestones of the global climate agenda, including the **Climate Action Summit of the General Secretary of the United Nations in New York** and the **Madrid Climate Change Summit (COP25)**.
- Progress on its commitment to **implement** the **recommendations** of the **Task Force on Climate-related Financial Disclosures (TCFD**) in its public reports by 2020.
- **Support for the goal of net-zero emissions by 2050** of the climate strategy of the **European Union.**